

# Incentives and Structure:

Effective Mechanisms for Collaboration

Gerald M. Stokes

Director

Joint Global Change Research Institute

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# There are several scales of interaction between Labs and Universities

- Lab Management Scale
  - Universities participate in, or are responsible for, the direct management of many of the DOE Laboratories
  - Several Laboratories (BNL, ORNL) have a secondary tier of universities that help provide guidance and oversight
  - All labs involve university faculty in their external review processes
- User Facility Scale
  - In general, the majority of users at DOE user facilities come from universities
- Institute Scale (my focus today)
  - An intermediate scale attempt to facilitate a large collaboration between a Lab and a University, or Universities
- Investigator Scale
  - Many projects at the Labs are conducted with University collaborators (viewed as a competitive requirement in some solicitations)

# There are many players and they have many incentives for the interaction

- Laboratory
  - The Contractor: Renewal (University relationships are important)
  - The Management: Leverage (funding and staff)
  - The Staff: Collaboration and cachet
- The University
  - The Administration: Funding and prestige
  - The Faculty: Collaboration and funding
  - The Students: Experience and pay
- The Department of Energy (and those that rule it)
  - Maintaining a good relationship with universities is important
  - Long standing interest in future work force
  - Satisfying Congress

# My experience at PNNL reflects a growing interest in strategic relationships

- My interactions
  - Series of personal collaborations in research
  - Managed a large program (ARM) with many university collaborators
  - Managed a Division which contained a User Facility (EMSL)
  - Sit on external review bodies with University participants (BNL, LLNL)
  - Currently direct a joint institute (JGCRI) at the University of Maryland
- My institution - PNNL
  - Historical focus on collaborations between individual researchers
  - First major User facility is less than 10 years old
  - Decided to make a targeted effort at strategic collaborations
    - Emphasis on User Facilities and Joint Institutes
    - Commitment at institutional level between partners
    - Both parties required to bring assets to the table
    - Several experiments underway

# PNNL-University relationships take different forms

## ■ Joint Institutes

- Joint Institute for Nanoscience and Nanotechnology
  - University of Washington
- Northwest Bioproducts Research Institute
  - Washington State, University of Idaho, INEEL
- Joint Global Change Research Institute
  - University of Maryland College Park

## ■ Large scale collaborations

- Biomolecular Systems
  - University of Washington, Washington State, University of California San Diego, MIT, Oregon Health Sciences University, Institute for Systems Biology
- Oregon Universities & PNNL Collaborative Education Program
  - Oregon University System (8 institutions) and Oregon Health Sciences University



**JGCRI**

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# The Joint Global Change Research Institute (JGCRI) at the University of Maryland

- Our model is a “nucleated” collaboration
  - Core of the Institute is an existing PNNL research group (10 years old)
  - Approximately 25 PNNL staff (most are very senior)
  - Annual research volume of \$4-5M per year
- Began in March 2001 with an MOU
  - Director from PNNL - Deputy Director from UMd (our friendly native)
  - Report to Vice President for Research
  - Move to College Park 9/01 in space leased from the University
  - Just off campus - some logistical problems
- Engagement activities
  - Symposium in March 2002
  - Ongoing seminar series with some on campus
  - Four faculty with ‘formal’ relationships to the Institute
  - Five PNNL staff with adjunct appointments (four departments)
  - 10-15 students per year (up from 2-3)
  - Have attempted to recruit collaborators into the University
- Funding efforts
  - Several joint proposals out \$40K-\$5M - only small wins so far
  - University supports two graduate fellowships



**JGCRI**

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# Circumstances have a major impact on the the way an institute evolves

- Employment is an issue
  - University managed lab
    - Employment mobility much easier
    - Real joint appointments possible
    - Easier funding flow
  - Contractor managed lab
    - Joint appointments more difficult (if not impossible)
    - Requires two-way funding path (double overheads)
- Location
  - On-site (lab)
  - Neutral site
  - On campus (my main experience)

# There are many incentives and motives

- Important to the Lab side
  - Increase intellectual scope (faculty & students)
  - Involvement of students - youth movement
  - Students are cost effective
  - Can pursue joint opportunities
- Important to the University
  - “Easier” funding path to University
  - Increases environmental signature of UMd
- Important to both of us
  - Can participate in respective environments
  - Well matched strengths make things easier
  - I/B: Sustained support (not just \$) from both sides
- Other reasons (not relevant to JGCRI)
  - Close connection to user facilities
  - Can ameliorate perceived University-lab conflicts



# There are barriers we have encountered and some we have dealt with

- Barriers we have met and broken down
  - Perceptions of competition
    - sought collaboration with those most concerned
  - Security considerations
    - Treated as University site; dual networks
  - Perceived “job-shop” use of faculty and students
    - Close control over appointments; implementing education requirement
  - Intellectual Property
    - case by case approach accepted as solution
- Ongoing problems and barriers
  - Geography (time of transaction is high)
  - No baseline funding for the Institute per se
  - Transition at the top (perceptions of wavering commitment)
  - Building relationships takes time
  - Tenure process limits involvement of young faculty
  - Financial arrangements for teaching are poor
  - Subject to DOE restriction on ‘contractors’ in DC area
  - I/B: Sustained support (not just \$) from both sides

# Some thoughts about time

- How long should an institute like this exist?
  - We have a five-year lease; probably a ten-year commitment; and a hundred year problem.
- Over what time should results be expected?
  - The result being: A different outcome than would have been expected otherwise - on both sides.
- There are many interacting timescales
  - Annual business planning
    - Pull up the plant and look at the roots
  - The State of Maryland biennial budget process
    - University has had across the board budget cuts
  - Academic year - doesn't affect us much.
  - Student lifetimes - only modest turnover so far
    - We have both undergraduate and graduate students
  - Tenure time-scales
    - We are more patient than an untenured faculty member can afford to be
- This will take time - at the two year point we have a firm foothold (toe?)

# Bottom Line

- Focus is key -
- Long-term commitment is important
- Most barriers can be addressed with time, trust, and persistence
- Patience, patience, patience ...